

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

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In re Application of:  
Takatoshi MIYAHARA et al.

Application No.: **Continuation of 09/807,005**

Group Art Unit: Not Yet Assigned

Filed: July 23, 2003

Examiner: Not Yet Assigned

For: **METHOD AND DETECTING APPARATUS  
AND DETECTING CHIP FOR SINGLE BASE  
SUBSTITUTION SNP AND POINT  
MUTATION OF GENES**

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**Information Disclosure Statement**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Listed on accompanying Form PTO/SB/08a/b are documents that may be considered material to the examination of this application, in compliance with the duty of disclosure requirements of 37 C.F.R. §§ 1.56, 1.97 and 1.98.

Where the publication date of a listed document does not provide a month of publication, the year of publication of the listed document is sufficiently earlier than the effective U.S. filing date and any foreign priority date so that the month of publication is not in issue. Applicants have listed publication dates on the attached PTO/SB/08a/b based on information presently available to the undersigned. However, the listed publication dates should not be construed as an admission that the information was actually published on the date indicated.

Applicants reserve the right to establish the patentability of the claimed invention over any of the information provided herewith, and/or to prove that this information may not be prior art, and/or to prove that this information may not be enabling for the teachings purportedly offered.

This statement should not be construed as a representation that a search has been made, or that information more material to the examination of the present patent application does not exist. The Examiner is specifically requested not to rely solely on the material submitted herewith. It is further understood that the Examiner will consider information that had been cited by or submitted to the U.S. Patent and Trademark Office in a prior application relied on under 35 U.S.C. § 120. 1138 OG 37, 38 (May 19, 1992).

Applicants have checked the appropriate boxes below.

- 1. This Information Disclosure Statement is being filed within three months of the U.S. filing date OR before the mailing date of a first Office Action on the merits. No statement under 37 C.F.R. § 1.97(e) or fee is required.
- 2. This Information Disclosure Statement is being filed more than three months after the U.S. filing date AND after the mailing date of the first Office Action on the merits, but before the mailing date of a Final Rejection or Notice of Allowance.
  - a. I hereby state that each item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(1).
  - b. I hereby state that no item of information in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to my knowledge after making reasonable inquiry, no item of information contained in this Information Disclosure

Statement was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(2).

c. Attached is our Check No. \_\_\_\_\_ in the amount of \$ \_\_\_\_\_ in payment of the fee under 37 C.F.R. § 1.17(p).

3. This Information Disclosure Statement is being filed more than three months after the U.S. filing date and after the mailing date of a Final Rejection or Notice of Allowance, but before payment of the Issue Fee. It is hereby requested that the Information Disclosure Statement be considered. Attached is our Check No. \_\_\_\_\_ in the amount of \$ \_\_\_\_\_ in payment of the fee under 37 C.F.R. § 1.17(i).

a. I hereby state that each item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(1).

b. I hereby state that no item of information in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to my knowledge after making reasonable inquiry, no item of information contained in this Information Disclosure Statement was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. § 1.97(e)(2).

4. Relevance of the non-English language document(s) is discussed in the present specification.

5. The document(s) was/were cited in a corresponding foreign application. An English language version of the foreign search report is attached for the Examiner's information.

6. A concise explanation of the relevance of the non-English language document(s) appears below:

7. The Examiner's attention is directed to co-pending U.S. Patent Application No. 09/807,005, filed July 19, 2001, which is directed to related technical subject matter. The identification of this U.S. Patent Application is not to be construed as a waiver of secrecy as to that application now or upon issuance of the present application as a patent. The Examiner is respectfully requested to consider the cited application and the art cited therein during examination.

8. Copies of the documents were cited by or submitted to the Office in Application No. 09/807,005, filed July 19, 2001, which is relied upon for an earlier filing date under 35 U.S.C. § 120. Thus, copies of these documents are not attached. 37 C.F.R. § 1.98(d).

It is respectfully requested that the Examiner initial and return a copy of the enclosed PTO/SB/08a/b, and to indicate in the official file wrapper of this patent application that the documents have been considered.

The U.S. Patent and Trademark Office is hereby authorized to charge any fee deficiency, or credit any overpayment, to our Deposit Account No. 50-0740, referencing Docket No. 027430.101-US01.

Dated: July 23, 2003

Respectfully submitted,

By \_\_\_\_\_  
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Substitute for form 1449/PTO <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <i>(use as many sheets as necessary)</i>				<b>Complete If Known</b>	
Sheet	1	of	2	Application Number	<b>Continuation of 09/807,005</b>
				Filing Date	July 23, 2003
				First Named Inventor	Takatoshi Miyahara
				Art Unit	N/A
				Examiner Name	Not Yet Assigned
				Attorney Docket Number	027430.101-US01

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. <sup>1</sup>	Document Number Number-Kind Code <sup>2</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
AA	US-4,840,893	06-20-1989	NGK Insulators Ltd.		

FOREIGN PATENT DOCUMENTS					
Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document Country Code <sup>3</sup> -Number <sup>4</sup> -Kind Code <sup>5</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
BA	EP-667398-A2	08-16-1995	Kyoto Daiichi Kagaku Co.		
BB	JP-09-288085	11-04-1997	NGK Insulators Ltd.		
BC	JP-10-146183-A1	06-02-1998	Toshiba Corp.		

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup>Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the application number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

NON PATENT LITERATURE DOCUMENTS					
Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.			
CA	Downs, Mark et al., "New DNA Technology and the DNA Biosensor," Analytical Letters, 20(12): 1897-1927 (1987).				
CB	Gilles, Patrick N. et al., Nature Biotechnology, 17(4): 365-370 (April 1999).				
CC	Hashimoto, Koji, et al., "DNA sensor for electrochemical gene detection," Preparing for Clinical Care Analyses in the 21st Century, 16th International Symposium, 1996.				
CD	Ihara, Toshihiro et al., "Synthesizing and Applying the Bis-intercalatox as an Electrochemical Detection Probe of DNA," Proceedings of the Japan Society for Analytical Chemistry, p. 54 (1989) - English translation attached.				
CE	Molinier-Jumel, Catherine, et al., "Electrochemical Study of DNA-Anthracyclines Interaction," Biochemical and Biophysical Research Communications, 1978.				
CF	Palecek, Emil, "Adsorptive Transfer Stripping Voltammetry: Determination of Nanogram Quantities of DNA Immobilized at the Electrode Surface," Analytical Biochemistry, 170: 421-31 (1988).				
CG	Takenaka, Shigeori, et al., "Bis-9-acridinyl Derivative Containing a Viologen Linker Chain: Electrochemically Active Intercalator for Reversible Labelling of DNA," J. CHEM. SOC., CHEM. COMMUN., 1990.				
CH	Takenaka, Shigeori, et al., "DNA Sensing on a DNA Probe-Modified Electrode Using Ferrocenylnaphthalene Diimide as the Electrochemically Active Ligand," Anal. Chem. 2000.				
CI	Takenaka, Shigeori, et al., "Electrochemically active threading intercalator with high stranded DNA selectivity," J. Chem. Soc., Chem. Commun., 1998.				
CJ	Takenaga, Shigeori et al., "Synthesizing the Electrochemical Threading Type Intercalator and Applying the Electrochemical Threading Type Intercalator to a DNA Sensor," Proceedings of the Japan Society for Analytical Chemistry, pp. 137-138 (1996) - English translation included.				

Examiner Signature		Date Considered	
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Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Substitute for form 1449/PTO				<i>Complete if Known</i>	
				Application Number	C 09/807,005
				Filing Date	July 23, 2003
				First Named Inventor	Takatoshi Miyahara
				Art Unit	N/A
				Examiner Name	Not Yet Assigned
Sheet	2	of	2	Attorney Docket Number	027430.101-US01

<b>NON PATENT LITERATURE DOCUMENTS (Continued)</b>			
Examiner Initials <sup>1</sup>	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
	CK	Takenaka, Shigeori, "Synthetic threading intercalators as a new analytical probe for nucleic acid and gene detection," Business Kagaku, Vol. 48, No. 12, 1999 and its English summary.	
	CL	Takenaka, Shigeori, et al., "Threading Intercalators as a New DNA Structural Probe," Bull. Chem. Soc. Jpn, 72, 1999.	
	CM	Yamashita, Kenichi, et al., "Electrochemical Detection of Base Pair Mutation," Chemistry Letters 2000.	

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup>Applicant's unique citation designation number (optional). <sup>2</sup>Applicant is to place a check mark here if English language Translation is attached.

Examiner Signature	Date Considered
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